Huntington Beach Municipal Pier
On Pacific Coast Highway
at the foot of Main Street
Huntington Beach
Orange County
California

HAER No. CA-80

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Regional Office
National Park Service
U.S. Department of the Interior
San Francisco, California 94102

CA-80-129 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: LIGHTING DIAGRAM
Sheet 10 of 11 (#3283)

CA-80-130 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: LIGHTING DETAILS
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The following are photocopies of architectural drawings by Schilling and Schilling, Architect and Engineer, 1931:

CA-80-131 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: PLANS AND SECTIONS FOR SUN PARLOR
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CA-80-132 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: ELEVATIONS AND DETAILS FOR SUN PARLOR
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CA-80-133 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: PLAN, ELEVATION & SECTIONS FOR BUILDING 3-B
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CA-80-134 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: PLAN & ELEVATIONS FOR BUILDING 3-A
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CA-80-135 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: PLANS, AND ELEVATION FOR BUILDINGS 1-A & 1-B
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CA-80-136 HUNTINGTON BEACH PLEASURE PIER RECREATIONAL BUILDINGS: LOCATION OF BUILDINGS
Sheet 8 of 8

The following are photocopies of architectural drawings by the City of Huntington Beach Engineer's Office. Delineated by John Bonnell, 1940; approved by Harry A. Overmyer, City Engineer.

CA-80-137 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: SITE PLAN AND TITLE SHEET
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CA-80-138 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: GENERAL PLAN AND GENERAL ELEVATION
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CA-80-I42 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: FISH CLEANING SINK, UTILITIES DIAGRAM
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CA-80-I44 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: DETAILS OF HOIST AND COUNTERWEIGHT, GANG PLANK, FENDER PILE CONNECTION, AND STEEL RAIL FENDER
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CA-80-I45 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: PLAN AND ELEVATIIONS FOR CONCESSION AND TOILET BUILDING
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CA-80-I46 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER RECONSTRUCTION: PLAN AND ELEVATIONS FOR HOIST HOUSE
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The following are photocopies of architectural drawings by the City of Huntington Beach Engineer's Office. Delineated by "M.W.R.", 1949; approved by Harry A. Overmyer, City Engineer.

CA-80-I47 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: TITLE SHEET AND SITE PLAN

CA-80-I48 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: ELEVATION AND PLAN, APPROACH TO MID-SECTION
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CA-80-149 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: ELEVATION AND PLAN, MID-SECTION TO END
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CA-80-150 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: TYPICAL PLAN OF EXISTING PIER, SHOWING PORTIONS TO BE REMOVED
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CA-80-151 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: DETAILS OF TYPICAL CROSS-SECTIONS OF EXISTING PIER
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CA-80-154 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: ELEVATION AND DETAILS OF HANDRAIL
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CA-80-155 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: TYPICAL LAYOUT OF NEW CONSTRUCTION
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CA-80-156 PLAN OF IMPROVEMENT, HUNTINGTON BEACH MUNICIPAL PIER: PLAN OF HANDRAIL
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The following are photocopies of architectural drawings by the City of Huntington Department of Public Works. Delineated by Blackie & Miller, 1968, and approved by James R. Wheeler.

CA-80-157 MUNICIPAL PIER LIGHTING: GENERAL PLAN
Sheet 1 of 3 (#3294)

CA-80-158 MUNICIPAL PIER LIGHTING: PROPOSED CONSTRUCTION OF ADDITIONAL LIGHT STANDARD BASES, PLAN #1
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CA-80-159 MUNICIPAL PIER LIGHTING: PROPOSED CONSTRUCTION OF ADDITIONAL LIGHT STANDARD BASES, PLAN #2 AND PLAN #3
Sheet 3 of 3 (#3296)

The following are photocopies of architectural drawings by the City of Huntington Beach Department of Public Works. Delineated by "Blackie," 1973, and approved by H. E. Hastings.

CA-80-160 PLAN OF IMPROVEMENT, PIER RAILING AND WATER LINE: GENERAL PLAN
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CA-80-161 PLAN OF IMPROVEMENT, PIER RAILING AND WATER LINE: ELEVATIONS, CROSS-SECTIONS, AND TYPICAL CORNER
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CA-80-162 PLAN OF IMPROVEMENT, PIER RAILING AND WATER LINE: DETAILS OF 2" WATER CROSSING CONCRETE SECTION, 2" WATER CROSSING WOOD SECTION, AND WATER LINE IN STEP
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CA-80-163 PLAN OF IMPROVEMENT, PIER RAILING AND WATER LINE: PLAN AND ELEVATIONS
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The following are photocopies of architectural drawings by Jeffrey T. Garner, Architect, 1984:

CA-80-164 RESTAURANT AT THE END OF THE HUNTINGTON BEACH PIER: TITLE PAGE, SITE PLAN, AND VICINITY MAP
Sheet I of 5

CA-80-165 RESTAURANT AT THE END OF THE HUNTINGTON BEACH PIER: FIRST FLOOR PLAN
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CA-80-166 RESTAURANT AT THE END OF THE HUNTINGTON BEACH PIER: SECOND FLOOR PLAN
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CA-80-167 RESTAURANT AT THE END OF THE HUNTINGTON BEACH PIER: ELEVATIONS
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CA-80-168 RESTAURANT AT THE END OF THE HUNTINGTON BEACH PIER: ROOF PLAN ELEVATION
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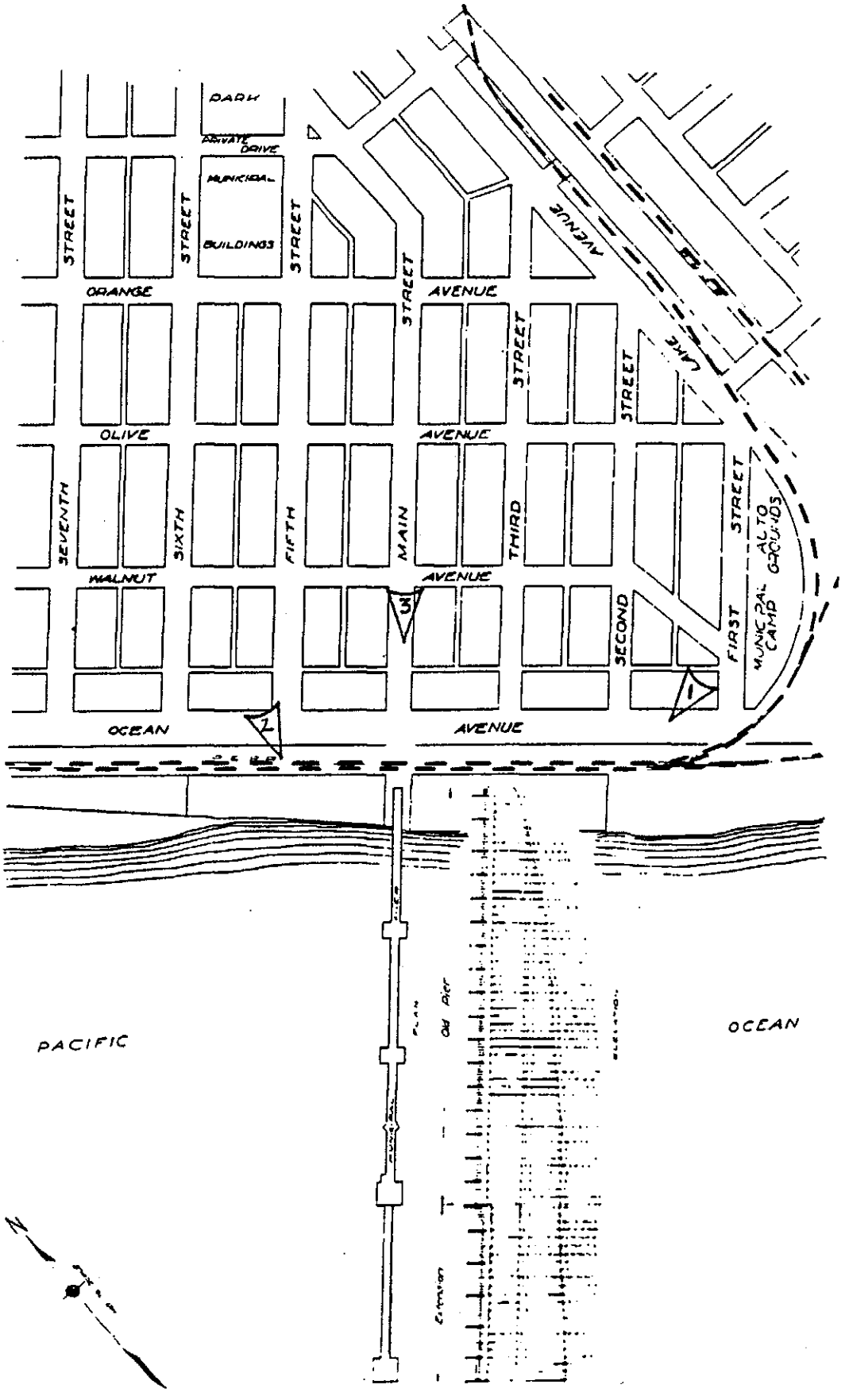
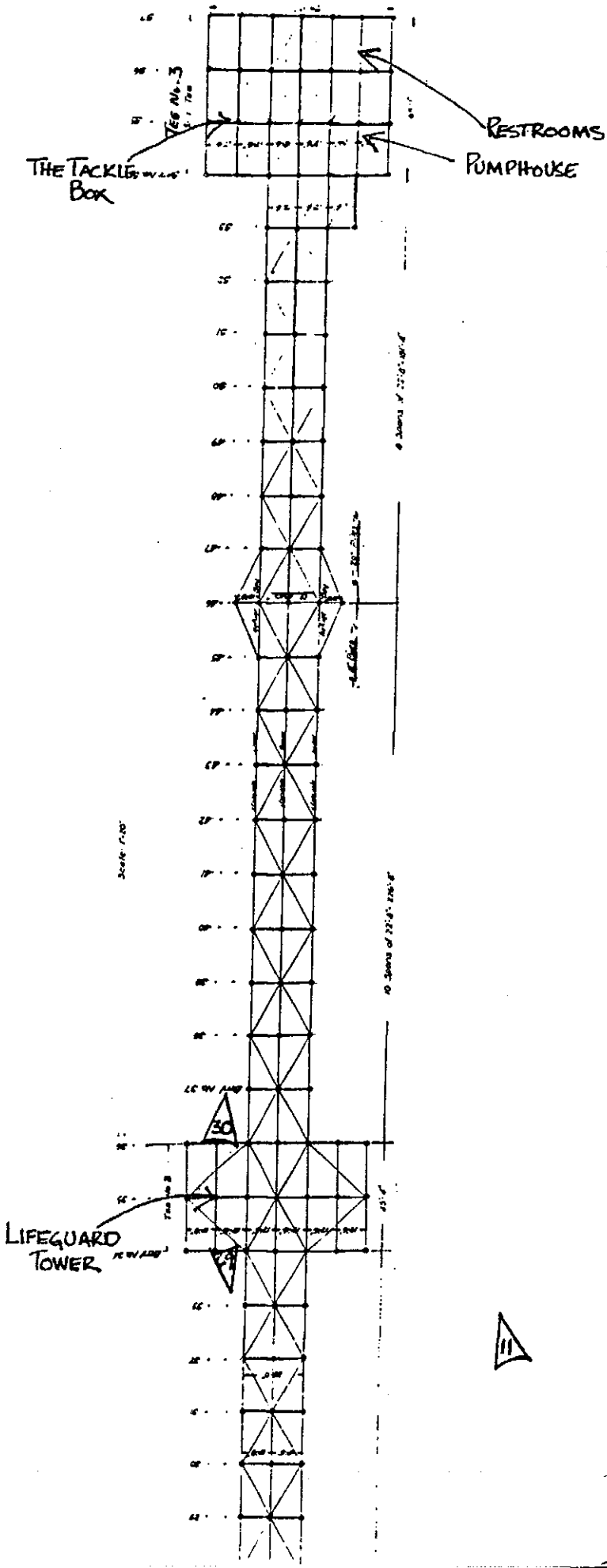
PHOTOGRAPH KEY: The map and three drawings on the following pages contain a partial key to the photographs indexed on pages 1-14. These visuals are meant to orient the user to the overall plan of the pier and to provide information on the photographer's location in cases where the location is not obvious from the photograph and caption. The pier plan includes bent numbers, so that the photographs which are identified by bent number can be easily located.

KEY TO PHOTOGRAPHS





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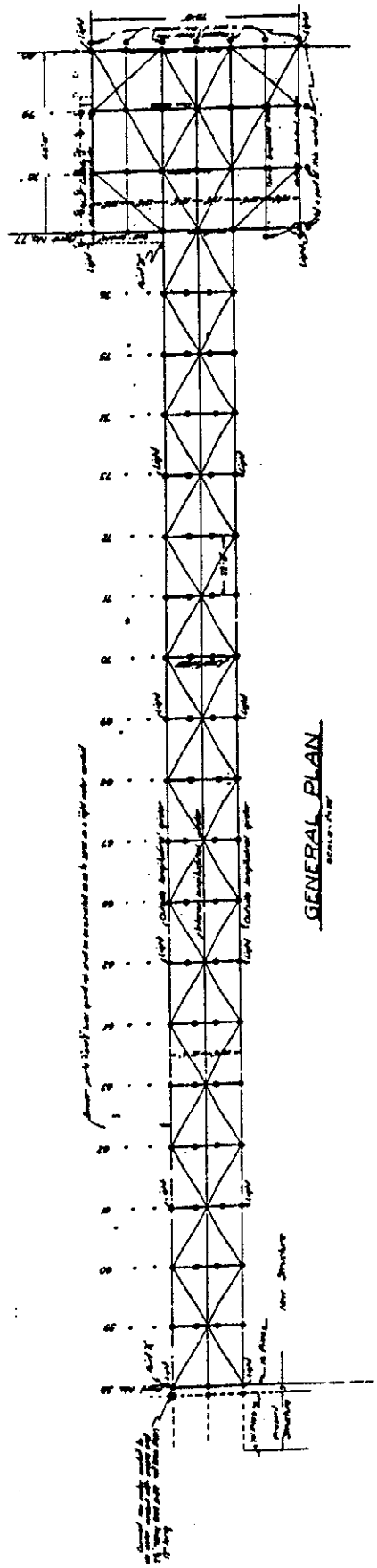

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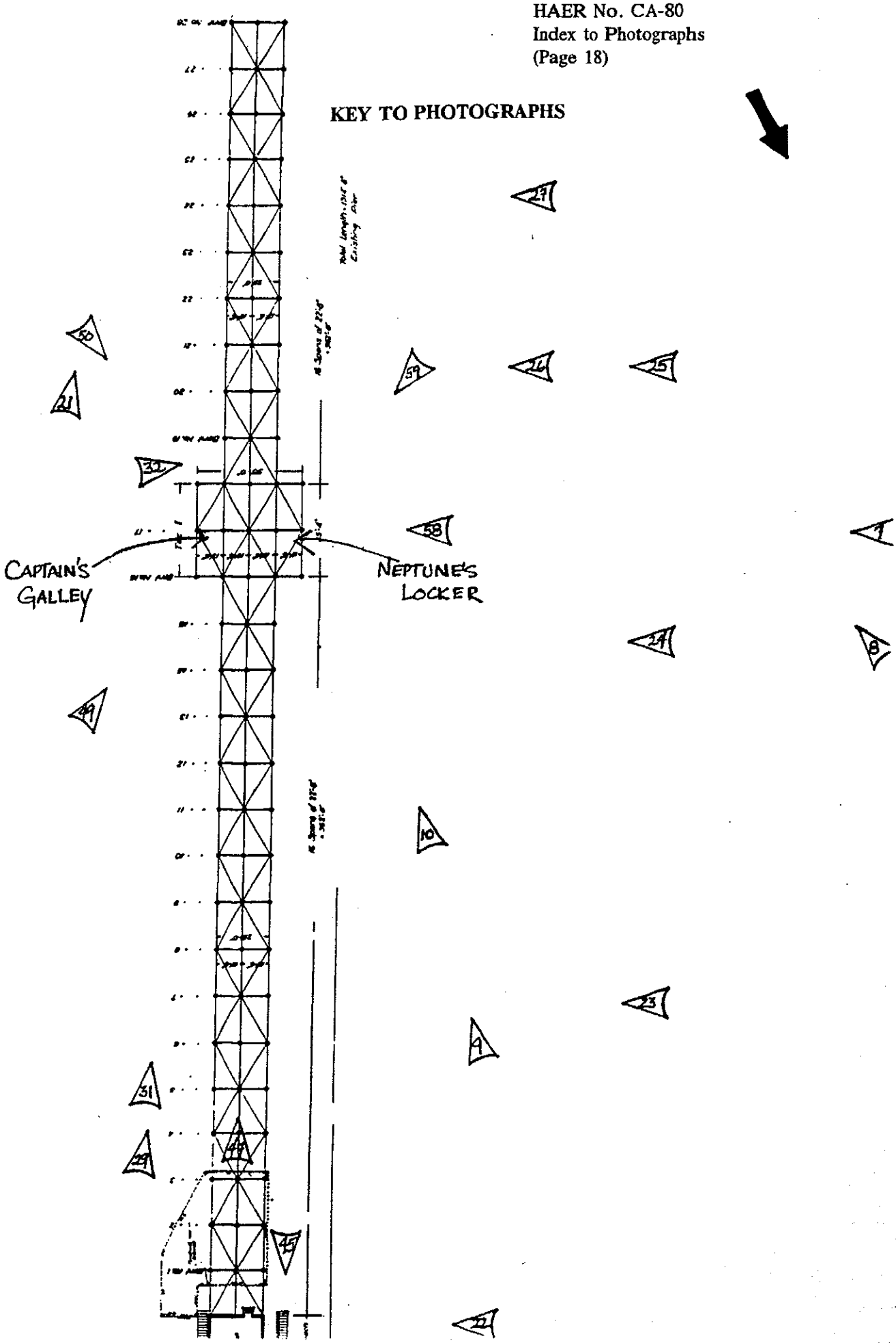

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HISTORIC AMERICAN ENGINEERING RECORD

Huntington Beach Municipal Pier

HAER No. CA-80

Location:	On Pacific Coast Highway at the foot of Main Street Huntington Beach, Orange County, California UTM: A 11 407160 3724380 (Foot) B 11 406840 3724018 (End) Quad: Seal Beach
Date of Construction:	1913-1914; repaired and extended 1930-31; repaired and portions reconstructed 1940; subsequent repairs and modifications in 1943, 1949, 1968, 1970, 1973, 1983, and 1985
Engineer:	Ernest Rothenburg
Builder:	Mercereau Bridge and Construction Company
Present Owner:	City of Huntington Beach 2000 Main Street Huntington Beach, California 92648
Present Use:	Vacant, except for manned lifeguard tower; no public use
Significance:	The Huntington Beach Municipal Pier is locally important because it was constructed for the express purpose of establishing the city of Huntington Beach as a West Coast resort community. As such, it was a catalyst for tourist-oriented economic development in the community. The pier is also significant because it embodies elements of architectural design and engineering that were advanced for its period of construction, and it is a rare surviving example of early 20th century reinforced concrete marine structures in the United States. It was listed in the National Register of Historic Places in 1989.
Report prepared by:	Rebecca Conard PHR Associates 725 Garden Street Santa Barbara, CA 93101
Date:	January 23, 1990

I. DESCRIPTION

The Huntington Beach Municipal Pier is a reinforced concrete structure of approximately 1800' in length, not including the section beyond the 4th Tee, which was lost to storm damage in January 1988. The present structure reflects several modifications made to the pier since it was constructed in 1913-14 -- the most important of which took place in 1930-1931, when the pier was extended and Art Deco style recreation buildings were constructed on the deck. The original plan and construction as well as subsequent extensions, reconstructions, and additions are detailed in Section II. Six buildings are located on the pier: an eatery known as the Captain's Galley, another eatery known as Neptune's Locker, a bait and tackle shop known as The Tackle Box, a pumphouse that has been converted to house electrical equipment, a lifeguard tower, and restrooms. The latter two buildings are fairly recent additions to the pier, though their precise dates of construction are undetermined. The converted pumphouse was part of the original 1913-1914 construction, and the two eateries as well as the bait and tackle shop were erected in 1931. Shortly after the 1988 storm, the pier was closed to public access, and four of the buildings have been vacant since then. The City continues to use the lifeguard tower and the pumphouse/electrical building. This documentation treats the buildings on the pier as auxiliary components of the main structure rather than as individual structures of a complex. The buildings would have little significance as individual structures apart from the pier, and historically, construction of the buildings on the pier has been viewed as part of maintenance and reconstruction activities.

On-site examinations of the pier, an analysis of engineering drawings and reports, and archival research indicate that the historical integrity of the original 1913-1914 pier and the 1930-1931 concrete extension is substantially intact, although the reinforced concrete structural members are seriously deteriorated. The percentage of intact historical fabric has been estimated at between 75 and 84 percent. The piles, pile caps, and longitudinal beams of the 1913-1914 structure were encased in gunite in 1930, but the original materials remain in place underneath. In 1939, about three-fifths of the 1930-31 extension was destroyed, then reconstructed in 1940. Virtually nothing remains of the 1940 timber extension.

The three 1931 Art Deco buildings have been altered on the interior, but the original designs of two of them remain substantially intact. The Tackle Box on the third Tee and the Captain's Galley on the first Tee retain good integrity of design, materials, and workmanship. The windows in the third building, Neptune's Locker, have been replaced with modern plate glass windows that are out of character with the original design. Integrity of location and setting are, of course, wholly intact.

The interior of the 1914 pump house has been altered to house electrical equipment, and the exterior walls appear to have been reclad with stucco or gunite. Historic photographs show that this was a rather undistinguished utility building to begin with, and the fenestration as well as one door provide the only physical evidence of its age. In addition, the public restrooms below the pier approach have been extensively altered, both on the exterior and interior. None of the original light standards remain, and a stairway to the beach has been modernized.

II. ARCHITECTURAL AND ENGINEERING INFORMATION

Original 1914 Pier

The Huntington Beach Pier was designed by Ernest Rothenburg and constructed by the Mercereau Bridge and Construction Company of Los Angeles at a cost of about $70,000 [Rosson, 1928:1; Plan of Municipal Pier, 1914]. Work began on April 15, 1913, and the structure was completed a year later, on May 1, 1914 [*Huntington Beach News* (hereafter *HBN*) 12 June 1914]. At the time the pier was built, it was considered to be Rothenburg's most significant work [Scientific Resource Surveys, 1989]. A 1929 engineer's report noted that "there [was] no recorded information available in regard to the daily construction progress" [Rosson and Berry, 1929:11]. Local historian Delbert Higgins, however, has written that "forms were layed out for making the pilings along Ocean Avenue at the foot of the pier and filled with concrete, left to cure, snaked out and jetted down about 30 feet deep" [Higgins ms., nd:2].

When completed, the pier measured 1314'8" long, about 114' longer than the 1201' pier shown on the 1914 plans [Photographs 110-118]. It was designed with a normal width of 25', and as constructed, it was supported by 203 piles varying in length from 30' to 60' long. It was built with three rectangular projections, or "Tees", and one triangular projection, known as the Refuge Bay. These projections (all extant) were located as follows along the pier:

> the center of Tee No. 1 was designed 408' from the shore end (it is 50' wide and about 45' long);
>
> the center of Tee No. 2 was designed about 771' from the shore end (it is 75' wide and about 45' long);
>
> the center of the Refuge Bay was placed about 975' from the shore end, with 10' triangular projections on either side of the deck;
>
> the center of Tee No. 3 was designed about 1167' from the shore end, but as the pier was constructed the center actually fell about 1270' from the shore end [Rosson and Berry, 1929:5; Plan of Municipal Pier, 1914]. It is 75' wide and 68' long.

From the shore end to the stiffening bent, located at the Refuge Bay, the original piles were 18" in diameter. From there to the pierhead, they were 20" in diameter. All piles were fabricated of concrete composed of one measure of Portland cement to six measures of graded creek-washed aggregates. Each was reinforced with eight 3/4" round steel rods tied together with steel wire hoops and imbedded to a depth of 2" clear concrete cover. Piles were sunk to a depth of 15' to 20' depending upon the distance from shore, not quite as deep as Higgins remembered. The original design apparently called for pedestal piles (with a large base), but for some reason the engineer changed his mind and had the pedestals cut off. The piles were then sunk with the aid of a jet, rather than driven, into the layer of sand and gravel covering the underlying strata of shale and rock [Rosson, 1928:1; Rosson and Berry, 1929:5-6].

The rest of the substructure was also constructed principally of reinforced concrete. The cross girders, or pile bent caps, measured 12" x 24", reinforced with 1" square steel rods. The outside longitudinal beams measured 11" x 27", reinforced with 3/4" round steel rods. Longitudinal beams located between the center piles of the bents measured 10" x 18", these were reinforced with 7/8" round rods. Oregon pine joists, measuring 3" x 14" x 24", supported a plank deck,

which was finished off with a 2-1/2" concrete surface reinforced both ways with 1/4" round steel rods [Rosson and Berry, 1929:6].

Public restrooms were constructed below the approach, with vitrolite used as wainscot on the interior walls [*HBN*, 17 April 1914; Plan of Municipal Pier, 1914]. A stairway on the northwest side of the approach descended to the beach. These structures are extant, although both have been modified extensively [Photographs 44-46]. Another stairway (nonextant) was located on the southeast side. Thirty-four ornamental concrete light standards with 16" globes illuminated the pier at night [*HBN*, 12 June 1914]. These have twice been replaced, and none of the original light standards remains. The datestone, laid on 20 June 1914 during a two-day opening celebration, was furnished by the Western Marble and Granite Company of Santa Ana and inscribed "Municipal Pier 1914." This feature was incorporated into an ornamental cement balustrade connecting the stairway to the approach. A similar stone inscribed "Huntington Beach" was placed nearby in front of the balustrade. Both are extant [Photographs 100-101]. The 1914 plans called for the balustrade panels to have a pebble dash finish, and the finish appears to be unmodified.

When it was first constructed, few buildings or other structures were located on the pier. According to Higgins, a fishing tackle store and a bait shop sat out on the End Tee [Higgins ms., nd:2]. A small concrete building, also on the End Tee, housed a pump which sent salt water through a pipe railing to the municipal plunge, reportedly constructed in 1912 and located on shore one block west of the pier [Plan of Municipal Pier, 1914; *Santa Ana Register*, April 1913; Photograph 105]. The pumphouse is extant, although it has been modified and now houses electrical equipment [Photograph 92]. At some point, the City also placed a diving platform out on the pier, though its location is undocumented and it is not discernible on old photographs [Higgins ms., nd:2].

1930-31 Repair and Extension

Longitudinal cracks began to appear in the piles during the early 1920s. By 1928, several cracks, some of which reached 18' in length, were exposing the steel reinforcing bars, and rust and spall had begun to deteriorate the substructure. [Rosson, 1928:1-2; Rosson and Berry, 1929:6-7]]. After much deliberation, the City chose not only to have the pier repaired, but to extend it as well. The extension was also constructed of reinforced concrete in keeping with the original design. Though a timber structure would have been less expensive, and was considered, Merwin Rosson, the City Engineer, recommended reinforced concrete, pointing to advances in technology and urging the City also to consider aesthetics [Rosson, 16 December 1929]. In 1930-31, the firm of Merritt, Chapman and Scott was selected to repair the original pier and construct the extension, which brought the total length of the pier to 1821'.

Repairs consisted of surrounding the original concrete piles, bents, and beams with reinforced gunite caissons [Photographs 39-43]. Below the higher high water mark, the piles were encased with a 3" centrifugally spun concrete shell, and the space between the shell and the pile was filled with concrete mortar injected under pressure [Plan of Improvement, 1930].

The new pilings for the pier extension were of centrifugally spun reinforced concrete, with galvanized steel as the reinforcing material. Pilings were fabricated on a vacant lot at the corner of Olive and Main Streets in Huntington Beach [*HBN* 14 August 1930]. After concrete was poured around the galvanized steel frame, each piling was whirled at 300 revolutions per minute in order to force water out, a technique which reportedly increased the hardness of the

concrete. It also created a hollow column at the center of each piling, through which steam would be forced to "jet" the structural member into place. Before they were set into the ocean, however, pilings were moved by crane to a sand pit where they were laid down to cure for thirty days [*HBN* 21 August and 20 November 1930]. A total of 108 new concrete pilings were fabricated, each piling weighing between 165 and 170 pounds. Another fifteen wooden pilings were required for the boat landing at the end of the pier extension [*HBN* 8 January 1931].

There is a visible difference between the original 1913-1914 pier and the 1930-31 extension. The deck level of the extension was lowered to 26'6", 4'6" lower than the original pier deck. No records indicate why the extension was lowered, but it is generally believed that a combination of deeper water and technological limits on the length of the pilings required engineers to drop the level of the extension. The 1930-31 project also added a fourth Tee. It measured 68'x75' and included a boat landing [Plan of Improvement, 1930; Overmyer, October 1939; Overmyer, November 1939]. At this time, the original light standards on the pier, reportedly gas-lit, were replaced for the first time. The City decided to recycle its old concrete electric street lights and placed them out on the pier, a cost-cutting move that saved taxpayers an estimated $2500-$3000 [*HBN* 20 November 1930].

1931 Pier Buildings

The firm of Schilling and Schilling, based in Long Beach, designed five Art Deco style recreational buildings for the pier as part of the repair and reconstruction project [HB Pleasure Pier Recreational Buildings, ca. 1930]. Schilling and Schilling, an architectural and engineering firm, also designed the Huntington Beach Memorial Hall (1931) and the Pacific Auto Works building in Long Beach (1928) in the Art Deco style [*HBN* 23 July 1931; Gebhard and Winter, 1985:99].

Three of Schilling and Schilling's pier buildings are still standing, and the record is unclear as to exactly how many of the planned buildings ever were constructed. The *Huntington Beach News* reported initially that six structures were to be erected on the pier [*HBN* April 16, 1931]. When the extended and refurbished pier was dedicated on July 1, 1931, the "many buildings then under construction" were open for public inspection, but work on them was not expected to be complete until later that month [*HBN*, July 2, 1931]. Photograph 108 is a historical view of the pier as it appeared after the 1930-31 work was complete. It shows four Schilling and Schilling buildings complete at that time, as well as the 1914 pumphouse and a boat house off the end of the pier.

The most elaborate of the pier buildings was an octagonal "sun parlor" located on the End Tee; it was destroyed in a 1939 storm [Photographs 131-132]. Schilling and Schilling designed the one-story sun parlor to be about 36' in diameter. The plans and a news photograph taken at the time the pier was dedicated show that a spire surmounted a conical roof. Shorter spires rose from the caps of geometrically fluted buttresses located at each of the building's eight angled corners. Outdoor seats were situated at the base of each buttress. Large steel sash windows permitted ocean viewing from inside the structure. Plans called for the exterior walls to be covered with glazed brick and ornamented with faience tile. However, while the pier buildings were under construction, the local newspaper reported that the exterior walls, presumably on all of the structures, were "to be finished with two shades of green in close harmony" [*HBN*, July 2, 1939]. In addition, a 1939 engineering report states that the parlor "was constructed with a dense gunite finish inside and out" [Overmyer, November 1939]. Thus it is unclear to what extent the fancier details of Schilling and Schilling's design were executed.

What is known is that the City achieved a cost savings of approximately $5000 by opting to construct the buildings with day labor under the direction of the City Engineer's Office rather than hire a private contractor [*HBN* 6 August 1931].

Two buildings of similar design were planned for the third Tee [Photographs 133-134]. Historical photographs indicate that only one of the two buildings was built, and it is still standing [Photographs 78-91]. Both buildings, however, were designed as one-story rectangular structures measuring about 19'x30'. The building which actually was constructed is located on the southeast side of the Tee. It was designed for use as a bait and tackle shop, and has most recently been called The Tackle Box. The building planned for the northwest side of the Tee, but not constructed, was intended for use as combination office and living quarters, and it was to be connected by a passage way to the pump house. The detailing on the extant bait and tackle shop is similar to that of the former sun parlor, with four geometrically fluted buttresses dividing the side elevations into three bays, and three buttresses dividing the end walls into two bays. Short spires rise from each of the buttresses, and the building has a high pitched (pyramidal) hipped roof. As with the sun parlor, the original plans called for glazed brick on the exterior walls, although gunite presently covers the exterior of three walls on the building, and this is probably the cladding applied when it was constructed [HB Pleasure Pier Recreational Buildings, ca. 1930]. The fourth wall is covered with board and batten siding. A refrigerated storage room was added to the building at some undetermined date.

On the first Tee, two more gunite-clad buildings were erected, and both are still standing, though vacant [Photographs 47-68, 135]. Originally designed for use as a cafe and a "lounging room" [*HBN* 6 August 1931], both buildings eventually housed food service operations. The concessions were last known as Captain's Galley and Neptune's Locker. The structures are narrow buildings, each measuring about 13'x44'. Fluted geometric buttresses divide the side elevations into five bays. Both buildings have gable roofs. Geometrically ornamented pediments appear at each gable end. The original design called for most of the wall space between the buttresses to be pierced with large steel sash, multipane windows [HB Pleasure Pier Recreational Buildings, ca. 1930]. Historic photographs that would document the design, as built, have not been located. In any case, field inspection shows that original windows have been replaced with modern plate glass windows in one of the buildings. Portions of the exterior walls have likewise been covered with board and batten, although the historic materials no doubt are intact underneath. The spires have been removed from both buildings.

1940 Repair

On September 24, 1939, a storm wrecked 295' of the seaward end of the pier, roughly three-fifths of the 1930 extension. The sun parlor was also destroyed. For reasons of economy, the City decided to replace the lost portion with a timber structure [Blackman, 1940]. Case Construction Company of Los Angeles removed the concrete wreckage. Smale and Robinson, acting as subcontractors to Elliott, Stroud-Seabrook of Los Angeles, built a new 300' timber section. John Bonell, Assistant City Engineer and L.H. Chamness, Chairman of the Beach and Pier Committee, designed the structure [*Southwest Building and Contractor* (hereafter *SWBC*), 4 October 1940; Plan of Municipal Pier Reconstruction, 1940; the 1940 drawings are reproduced in photographs 137-146; the appearance of the pier ca. 1945 is shown in photograph 109; the present-day appearance of this Tee is shown in photographs 94-99].

The timber replacement, which was about 300' long, continued the 26'6" elevation of the concrete extension. It also added a fifth Tee. All the timber in the substructure, including pile caps, cross bracing, and longitudinal bracing, was creosoted Douglas fir, connected with galvanized bolts, pins, spikes, and other hardware. The piles were driven at least 22' deep. Three and one-half inches of concrete with a 1" asphalt concrete wearing surface covered the timber deck. A live-bait tank, a hoist building with a gang plank, toilets, and a septic tank were constructed on or below deck at the pierhead [*SWBC*, 4 October 1940; Plan of Municipal Pier Reconstruction, 1940].

As reconstructed, Tee No. 4, now of timber rather than concrete, was located at the junction of the remaining concrete extension. Upon the new End Tee (Tee No. 5) was erected a 26'x30' concession building, first used as a restaurant. As originally built, the restaurant was a wood-frame building with a "cement plaster exterior, rigid asbestos shingles, and a large steel sash window area protected by a wrought iron grille" [*SWBC*, 4 October 1940; Plan of Municipal Pier Reconstruction, 1940].

Post-1940 Changes

Various repairs and modifications have been made to the pier since 1940. Minor repairs were made in 1943 after a winter storm destroyed several timber piles and a portion of the boat landing suspended beneath the deck [Overmyer to City Council, 3 May 1943].

In 1949, the timber stringers from the original pier, bents 1-57, were replaced and the superstructure redecked. In addition, all the light standards between these bents were replaced, as were the concrete steps located in front of the buildings on Tee No. 1 and the steps running from bent 34 to bent 35 at Tee No. 2 [Photograph 73]. A small toilet building was removed from Tee No. 3; no record has been located to establish when this building was constructed. The handrail and salt water line also were replaced, and gunite repairs were made to the concrete girders and piles [Plan of Improvement, H.B. Municipal Pier, 1949; Photographs 147-156].

It is not known exactly when the lifeguard tower was built on Tee No. 2, though it is reported as having been "remodeled" in the 1950s [Frank, 1986; Photographs 70-72]. New pier lighting was installed along the pier in 1968 [Municipal Pier Lighting, 22 March 1968; Photographs 75; 157-159].

In 1970, the concrete extension was renovated. The wood deck was replaced with a reinforced concrete joist deck. In addition, the piles and pile caps were sandblasted and coated with a 1 1/2" reinforced gunite layer. Some badly deteriorated piles were replaced. New galvanized steel railing and new marbleite light standards also were installed on the extension [Plan of Improvements, Municipal Pier Reconstruction, 5 February 1970].

The railing was altered again in 1973, when a water line was installed in the third rail. At that time, a fish-cleaning stand, fabricated of timber beams, was erected on the pier [Plan of Improvement, Pier Railing and Water Line, 22 February 1973; Photographs 160-163].

The 1940 building on the end of the pier became a popular local hangout named the End Cafe. It was wrecked in January 1983 by a winter storm and subsequently demolished, but the old haunt is still fondly remembered by locals [*L.A. Times*, 3 March 1983; *Daily Pilot*, 24 and 28 March 1983; *Huntington Beach Independent*, 14 September 1988]. Shortly thereafter, the

timber section was rebuilt [HB Pier, Timber Pier Repairs, 10 May 1983]. A new, and larger, two-story restaurant was erected at the pierhead in 1985 [Photographs 164-168]. Designed by Robert Trivison and Associates of Orange, its modern appearance and amenities were controversial among those who preferred the weathered character of the old, unheated End Cafe [*L.A. Times*, 18 January 1985, 20 September 1985]. This restaurant, however, met the same fate as its predecessor. It went down in January 1988 when winter storm waves for the second time washed away 300' of the seaward end of the pier [*Orange County Register*, 19 January 1988]. In 1984, the public restrooms under the pier approach underwent interior major alterations [Fluor Daniel, 1988: Appendix A].

A few other modifications remain undated. These include the concrete block walls which line the stairway to the beach on the northwest side of the pier; the original concrete steps remain. Also undated is the removal of the stairway on the southeast side of the pier. In addition, new restrooms have been erected on the west side of Tee No. 3.

III. HISTORICAL INFORMATION

Community History

The Huntington Beach Municipal Pier was built in order to establish the City of Huntington Beach as a West Coast resort community. The pier and the seaside concessions which accompanied it reflected a nationwide trend to construct recreational facilities and luxurious hotels that would attract tourists, as well as prospective residents, to coastal areas. The grand plans of community boosters were never fully realized, and thus Huntington Beach could not offer visitors the elegance and genteel ambience that could be found at California's better-known tourist resorts, such as the Del Coronado in San Diego, the Arlington and Potter Hotels in Santa Barbara, or the Hotel Del Monte in Monterey. Nonetheless, the pier attracted its share of tourists and provided a popular recreation spot for residents throughout Orange County. The pier also was a catalyst for community economic development, as evidenced by the many tourist- and recreation-oriented businesses which grew up around the foot of the pier along Pacific Coast Highway. To the public-at-large as well as to local residents, the pier has been a landmark defining the community's image as a beach town.

The municipal pier is one of three piers that were built in Huntington Beach during the early 20th century. In about 1906 the Stearns Brothers and the Reynolds Brothers built a short pier for the purpose of conducting experiments on the generation of electricity with wave action. The venture generally was unsuccessful, and the pier eventually rotted away. The Holly Sugar Company built another pier at the foot of 23rd Street in about 1911 for the purpose of transporting refinery waste water into the ocean. This pier also rotted away [Higgins ms., n.d.].

When the concrete pier was constructed in 1913-1914, it replaced a 1904 wooden pier wrecked by storms in 1906 and 1912. The wooden pier, like its concrete replacement, was built principally to draw prospective new residents and a summer resort crowd to the area. The original name given to the planned town belies the motive of its promoters, the West Coast Land and Water Company: hoping to profit from name association with the popular East Coast resort, Atlantic City, New Jersey, the developers named the town Pacific City. In 1903, however, the name was changed to Huntington Beach in deference to Henry E. Huntington, who bought an interest in the West Coast Land and Water Company and then extended his Pacific Electric Railroad line south. The "red car line" began operating in 1904, the same year

the wooden pier was built [Meadows, 1963:215-217; Higgins ms., n.d.; Milkovich, 1987:46-47]. The Huntington Beach Co., as the development company now was known, immediately began advertising its "resort" as "the most attractive and delightful of all places on the Pacific Coast" [*L.A. Times*, 3 July 1904]. Both the pier and the electric cars were credited with helping to make the development plan a success because real estate prices increased dramatically shortly thereafter [Meadows, 1963:215].

After the wooden pier washed away for the second time, Thomas Talbert led a community effort to build a new structure of greater permanence. With voter approval, the City issued a $70,000 bond in order to fund the cost of a reinforced concrete pier [Bauer, 1987:42]. When it was completed, the Board of Trade sponsored a two-day celebration inaugurating the newly dubbed "Pride of the Pacific." An estimated 20,000 tourists and locals turned out for the events [*HBN*, 10 April 1914; 26 June 1914]. At the time, the Huntington Beach Pier was described as "one of the longest concrete piers on the Pacific Coast" [*HBN*, 26 June 1914]. It was also considered to be one of the major attractions along the coast. The Southern California Panama Expositions Commission featured the new "electric lighted, concrete municipal pleasure and fishing pier" in its promotional literature prepared for the 1915 Panama-Pacific Exposition in San Francisco and the Panama-California Exposition in San Diego [Southern California Panama Expositions Commission, ca. 1914].

The repair, restoration, and addition of recreational facilities on the pier during the 1930s indicates the structure's continuing importance to the community. While the City Council was deliberating what action to take after the pier was wrecked, City Engineer Merwin Rosson strongly recommended that the Council avoid the temptation simply to add new piles to carry the load of the deteriorated sections in order to keep the cost of repair as low as possible. Such a solution, he urged, would "be a blow to public good taste," and he therefore recommended that the City stand the expense of restoring the pier so as to maintain "as far as possible the architectural lines of the structure" [Rosson, 16 December 1929]. The City adopted his recommendation and authorized the issuance of a $60,000 bond for pier restoration as well as another $62,000 bond for the 500' extension [Resolution 623, 16 December 1929]. The City then went one step further by erecting fishing and recreational facilities on the restored and extended pier.

There is some indication that the City promoted the project as an employment measure to offset the local effects of the economic slump triggered by the 1929 stock market crash. On September 18, 1930, the *Huntington Beach News* reported that forty men, all residents of Huntington Beach, had "steady jobs" working on the pier, "in compliance with the national movement following a suggestion of President Hoover that throughout the nation public works be undertaken." Pier improvements represented less than half of the City's commitment to upgrade the facilities that brought in tourists. In addition to the $122,000 in bond issues for the pier, the City spent $150,000 to remodel the dance pavilion, rebuild the plunge, convert concession booths into sheltered picnic areas for public use, and plant a flower garden along Pacific Coast Highway [*HBN* 5 March 1931].

For a few years during World War II, the pier was used for national defense purposes, as were many facilities along the California coast. Following the Japanese attack on Pearl Harbor, December 7, 1941, the U.S. Army Western Defense Command took over the pier and used the structure as a military lookout post. Units of the 144th Field Artillery (National Guard) were dispatched to positions along the coastline from Santa Barbara on the north to Newport Beach on the south, where they set up batteries capable of firing on enemy naval vessels. After these emergency batteries were in place, the positions operated by the Harbor Defenses of Los

Angeles were divided into four regional groups. Group "D" encompassed the southernmost positions, from Long Beach to Newport Beach. Huntington Beach was established as the command post for Group D, and a searchlight as well as machine guns were installed on the pier. Sentries controlled access to the pier until the post was deactivated sometime in mid-1945. The searchlight was removed by September of that year [Monnet, et al., 1945; US Army History, 1945].

Technological History

As an engineering feat, the Huntington Beach Pier is a rare surviving example of early 20th century reinforced concrete marine structures in the United States. It embodies elements of architectural design and engineering that were advanced for its period of construction. The use of reinforced concrete for structures placed in salt water dates to about 1898 in Europe and about 1905 in the United States. It took several years before engineers fully understood the technological problems posed by the action of sea water against concrete and the imbedded metal reinforcing bars. As a result, many of the earlier structures failed and were demolished. The Huntington Beach Pier therefore appears to be a relatively scarce surviving example of early reinforced concrete piers constructed in the United States.

Comparative data on other extant and nonextant reinforced concrete piers have not been compiled. However, as of January 1989 the Huntington Beach Pier was one of six piers listed on the National Register. The other five include Pier 19 (Mosquito Fleet Berth) in Galveston, Texas; City Pier A in New York City; Melbourne Beach Pier in Melbourne Beach, Florida; the Municipal Pier in Chicago; and the Hanalei Pier in Hanalei, Hawaii [National Register listings 75001203, 75001981, 79000757, 79000825, 84000829]. Of the five, four have concrete structural members, but the Huntington Beach Pier differs significantly from all of them. City Pier A, 285' long and constructed in 1885-86, contains mass concrete foundations that support sub-piers of granite; it has no reinforced concrete members. Melbourne Beach Pier, originally constructed in 1908, is supported by a combination of timber and reinforced concrete piles, the latter having been installed in 1918 when the pier underwent extensive repairs. Chicago's Municipal Pier, a 3,040' structure built in 1916, has timber piles that carry interlocked reinforced concrete dock walls. The Hanalei Pier, built in 1912, is a 340' finger pier constructed entirely of reinforced concrete. The Hanalei Pier probably shares more similarities with the Huntington Beach Pier than do the others; however, it is also a very short pier originally built for loading and unloading cargo. In sum, National Register listings reveal that very few older piers have attracted attention as historic structures, suggesting that few piers have survived long enough to be considered historic.

When the pier was constructed in 1913-1914, the use of reinforced concrete for marine structures was still in its infancy. The first U.S. patent for a reinforced concrete dock appears to have been granted in 1903 to one Mr. Mouchel, who patented a design using hollow pilings of reinforced concrete [Carey v. Detroit Iron and Steel, 1915; City of Detroit v. Kahn, et al., 1927]. Subsequent to Mouchel's invention, William Ferguson applied in 1909 for a patent on his design of a wholly integral reinforced-concrete dock that allowed a skeletal rather than mass concrete structure [Patent 1,089,405; issued 10 March 1914]. The genius of Ferguson's design was that it avoided "the necessity of these massive structures, on the one hand, and [permitted the] adaptation of the elements of land structures to dock construction, on the other" [Detroit Railway v. William S. Ferguson, et al., 1930].

Ferguson's patent, which he assigned to James D. Carey, became the subject of several patent infringement lawsuits. Court documents detailing these lawsuits indicate that Ferguson invented his design and construction technique in 1906, as evidenced by a plan he submitted for a dock the Cleveland Furnace Company intended to build. Cleveland Furnace had a section built and subjected to various tests for several months prior to actual construction of the dock in 1910 [Detroit Iron and Steel v. Carey, 1916].

Although Ferguson's design represented an important technological advance in the United States, concrete had been used in the construction of docks since the 1880s. The earliest application appears to have been encasing timber bents with concrete, claimed to have been typical of platform wharf construction in France and Holland [City of Detroit v. Kahn, et al., 1927]. As noted above, mass concrete was used in New York City's Pier A, constructed in 1885-86. During the late 1890s, a reinforced concrete dock in Southampton, England, was constructed utilizing a design patented by Francois Hennebique. The Hennebique design called for wooden framing, a reinforced concrete front surface, a concrete slab resting on piles, and a reinforced concrete floor. In 1906, another Hennebique dock was built at Rochester, England [City of Detroit v. Kahn, et al., 1927]. Hennebique, in fact, played a major role in developing the theory of reinforced concrete design, and his 1892 European patent for reinforcing structural beams has been recognized as a milestone in concrete technology. By 1898, "he had developed a complete system for the reinforcing of columns, beams, and floors" [Rotsch 1967:204].

The first use of reinforced concrete in the United States dates from 1860, when S.T. Fowler patented a reinforced concrete wall, but, in general, the technology developed more slowly in the United States than it did in Europe [Coney, ca. 1987:2]. European engineers preceded their American counterparts in experimenting with reinforced concrete for large civil works, including bridges, dams, retaining walls, reservoirs, quays, and docks. The early 20th century witnessed a host of developments in both Europe and the United States as engineers increasingly recognized the structural superiority of reinforced concrete over ordinary masonry. Reinforced concrete also permitted the design of open structures [Jackson, 1988:35-38].

Standards for design and materials testing also developed gradually. The American Society of Testing Materials (1902), the American Concrete Institute (1905) and the Portland Cement Association (1916) were founded in part for the purpose of improving reinforced concrete design, but the U.S. did not adopt standards for design and materials testing until the mid-1920s [Rotsch, 1967:204-205].

It is possible that Ernest Rothenburg, designer of the Huntington Beach Pier, drew his inspiration from European engineering. In June 1914, as construction of the pier was nearing completion, the *Huntington Beach News* reported that he was then in Germany [12 June 1914]. Moreover, illustrations accompanying Ferguson's patent as well as the original plans for the Huntington Beach Pier provide evidence that Rothenburg did not utilize Ferguson's design [U.S.Patent 1,089,405]. Notably, Ferguson's patented design called for a reinforced concrete subfloor, whereas the Huntington Beach Pier deck was constructed with a wood subfloor.

Investigations conducted by City Engineer Merwin Rosson in 1928 reveal that, while the pier is certainly an early example of a reinforced concrete marine structure, it was not the earliest. The first reinforced concrete piles along the California coast reportedly were driven in San Pedro Harbor in 1908. The City of Los Angeles constructed several berths in the L.A. Harbor,

plus a wharf in the Outer Harbor, between 1910 and 1913. The original Santa Monica Pier, built 1909, was also of reinforced concrete, though it later was replaced with a timber pier. Likewise, the Redondo Beach Pier was of reinforced concrete [Rosson, 1928:2-3; see also Nicholson to Home Insurance, 4 November 1939]. By 1928, however, the original Santa Monica Pier was gone, the Redondo Beach Pier had been closed to public access due to its severely deteriorated condition, the San Pedro pilings were in an advanced stage of disintegration, and the L.A. Harbor wharf showed signs of deterioration [Rosson, 1928:2-3]. A concrete pier also existed at Hermosa Beach, but it is no longer extant [SRS, NRHP nomination, 1989].

In 1929, Rosson and consulting engineer Thomas Berry investigated other "sea structures" along the coast from San Diego to San Francisco, but their findings are not detailed other than to state that they "found little or no experience of value to follow" [Rosson and Berry, 1929:2]. A similar type of investigation conducted by engineer George F. Nicholson in 1939 found that 92 percent of ten reinforced concrete berths in the Los Angeles Harbor built between 1910 and 1913 were severely disintegrated. Four others, repaired in 1926, were in good condition. The Belmont Shore Pier, built a year after the Huntington Beach Pier, was badly cracked and rusting despite repairs made in 1930 [Nicholson to Home Insurance, 4 November 1939].

In sum, the engineers' reports of 1928, 1929, and 1939 indicate that, by 1940, the Huntington Beach Pier was among the oldest extant reinforced sea structures along the southern California coast and probably had the best chance of surviving. Certainly, the design of the original pier embodied the ideas and knowledge of an engineer who was working on the cutting edge of reinforced concrete technology.

IV. SOURCES

Bauer, Patti. "History of Huntington Beach" in *City of Huntington Beach Miscellaneous Historical Data.* City of Huntington Beach, 1987.

Blackman, J.W.B. (Consulting Engineer). Letter of Report on the Huntington Beach Pier Extension to the Huntington Beach Mayor and City Council, January 22, 1940.

James D. Carey v. Detroit Iron and Steel Company. No. 79 in the District Court of the United States for the Eastern District of Michigan, Southern Division. Oral Opinion of Arthur J. Tuttle, District Judge, Dated July 17, 1915.

City of Detroit v. Isaac Kahn, The Dock and Terminal Engineering Company, et al. 22 Fed (2d.) 613. Appeal from the District Court of the United States for the Eastern District of Michigan, Southern Division, No. 4809, Decided November 18, 1927.

City of Huntington Beach. Resolution No. 623 "Determining and Declaring that the Public Interest and Necessity Demands the Acquisition, Construction, and Completion Within the City of Huntington Beach, California, of Certain Municipal Improvements," 16 December 1929.

Coney, William B., A.I.A. *Preservation of Historic Concrete.* Preservation Brief #15. Washington, D.C.: Dept. of the Interior, National Park Service, n.d. (ca. 1987).

Daily Pilot. News articles dated as noted in text.

Detroit Iron and Steel Co. v. James D. Carey, 236 Fed. 924. Error to the District Court of the United States for the Eastern District of Michigan, No. 2883, Decided October 13, 1916.

Detroit Railway and Harbor Terminals v. William S. Ferguson, et al. U.S. Circuit Court of Appeals Sixth Circuit, Eastern District of Michigan, No. 5330, Decided June 12, 1930.

First American Title Insurance Company, Santa Ana, California. Historical Photographs.

Fluor Daniel, Inc. *City of Huntington Beach, Municipal Pier Study.* Fluor Daniel, July 1988.

Frank, Jeanine. "Pier Damage and Repair at Huntington Beach," Huntington Beach Management Club *Random Memo*, December 1986.

Gebhard, David and Robert Winter. *Architecture in Los Angeles: A Compleat Guide.* Salt Lake City: Peregrine Smith Books, 1985.

Higgins, Delbert C. "Huntington Beach Piers." Undated typescript located at the Huntington Beach Public Library.

Huntington Beach Independent. News reports dated as noted in text.

Huntington Beach News. News reports dated as noted in text.

Jackson, Donald C. *Great American Bridges and Dams.* Washington, D.C.: Preservation Press, 1988.

Los Angeles Times. News reports dated as noted in text.

Meadows, Don. "Huntington Beach--Town on the Mesa" in *The [Orange County] Historical Volume and Reference Works*, ed. Thomas B. Talbert. Whittier: Historical Publishers, 1963.

Milkovich, Barbara. "Huntington Beach-The Historic Past, 1800-1950" in *City of Huntington Beach Miscellaneous Historical Data.* City of Huntington Beach, 1987.

Moffatt and Nichol, Engineers. *Huntington Beach Municipal Pier Rehabilitation Feasibility Study*, July 31, 1989.

Monnet, Lt. Col. John R., Major Lester Cole, and Sgt. Jack C. Cleland. "Harbor Defenses of Los Angeles in World War II." Special end-of-war issue of *The Alert*, Ft. MacArthur's camp newspaper, 1945.

National Register Nomination Forms:
75001203 City Pier A, New York City, entered 27 June 1975

75001981 Pier 19, Mosquito Fleet Berth (Galveston Maritime Site, Galveston, Texas, entered 21 April 1975

79000757 Hanalei Pier, Hanalei, Hawaii, entered 13 September 1979

79000825 Municipal Pier, Chicago, Illinois, entered 13 September 1979

84000829 Melbourne Beach Pier, Melbourne Beach, Florida, entered 12 April 1984

Nicholson, George (Consulting Engineer, Los Angeles). Letter to Home Insurance Company, 4 November 1939.

Orange County Register. News reports dated as noted in text.

Overmyer, Harry A. (City Engineer). "Report on the Probable Life of the Huntington Beach Municipal Pier," October 1939.

_____. "Detailed Report of Depreciation on Our Huntington Beach Municipal Pier," November 1939.

_____. Letter to Mayor and City Council reporting on January 1943 storm damage, 3 May 1943.

Park, Sharon, A.I.A., National Park Service, Preservation Assistance Division. Telephone consultation with Rebecca Conard, Santa Barbara, 23 January 1989.

Rosson, Merwin (City Engineer). "Report on the Condition of Huntington Beach Pier and Suggested Methods of Repairs," 1928.

Rosson, Merwin (City Engineer) and Thomas Berry (Consulting Engineer). "Report on the Restoration of the Huntington Beach Municipal Pier, and Proposed Extension of the Pier," December 2, 1929.

_____. Recommendations to Mayor and City Council, 16 December 1929.

Rotsch, Melvin M. "Building with Steel and Concrete" in *Technology in Western Civilization, vol. 2*, ed Melvin Kranzberg and Carroll W. Pursell, Jr. New York: Oxford University Press, 1967.

Santa Ana Register. News items dated as noted in text.

Scientific Resources Surveys, Inc. National Register Nomination for the Huntington Beach Pier, prepared by Nancy A. Whitney-Desautels, January 1989.

Southwest Builder and Contractor. News item appearing in the October 4, 1940 issue.

Swanson Service Corporation and William M. Simpson, Consulting Structural Engineer Corp. *Structural Survey of Huntington Beach Municipal Pier.* Swanson Service Corporation, Huntington Beach, August 1979.

United States Patent No. 1,089,405. William S. Ferguson, of Cleveland, Ohio, Assignor to J.D. Carey, of Cleveland, Ohio for a Reinforced-Concrete Dock or Pier. Patented March 10, 1914.

U.S. Army. "History of the Western Defense Command," vol. 6, part 6, mimeograph, ca. 1945. Annex C to Appendix VIII: "History of the Elements of the 56th Coast Artillery Regiment (155 mm. Gun) Assigned to the Southern California Sector, Western Defense Command, during the period 1 October 1942 to 19 January 1944." In the National Archives, Washington, D.C. and U.S. Army Military History Institute, Carlisle Barracks, PA.

United States Code of Federal Regulations, 1 July 1986 edition.

Plans and Drawings

1913 Plan for Municipal Pier at the foot of Main Street in the City of Huntington Beach, E. Rothenburg, Engineer.

1930 Plan of Improvement, Huntington Beach Municipal Pier, Merwin Rosson, City Engineer.

1931 (circa) Huntington Beach Pleasure Pier Recreational Buildings. Schilling and Schilling, Architect and Engineer, Long Beach.

1940 Plan of Improvement, Huntington Beach Municipal Pier Reconstruction, Harry A. Overmyer, City Engineer.

1949 Plan of Improvement, Huntington Beach Municipal Pier, H.A. Overmyer, City Engineer.

1968 Municipal Pier Lighting, City of Huntington Beach.

1970 Plan of Improvement, Municipal Pier Reconstruction, Bent 57 to 68.

1973 Plan of Improvement, Huntington Beach Municipal Pier.

1983 Huntington Beach Pier, Timber Pier Repairs.

1984 Plan for the Restaurant at the End of the Huntington Beach Pier, Robert Trivison and Associates, Orange.

V. PROJECT INFORMATION

This documentation has been prepared at the request of the City of Huntington Beach, which is proposing to demolish the structure and replace it with a new concrete pier in the same location. As part of the plan, the memorial stones located at the pier approach will be saved and relocated in approximately the same spot on the proposed new pier.

Project Manager for the recordation was Elizabeth Padon of LSA Inc. Rebecca Conard of PHR Associates was the Principal Investigator. The photographer was William B. Dewey of Santa Barbara, California. The documentation is based on a previous investigation conducted by LSA, Inc. and PHR Associates, reported in Huntington Beach Pier: Evaluation of Historical Significance with Treatment Recommendations (1989), and on the National Register of Historic Places nomination prepared by Scientific Resource Surveys, Inc. (1989). Jason Marmor of LSA, Inc. conducted additional archival research as part of the HAER recordation project.